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REMARKS

Claims 1, 4, 5, 33-41 and 66-74 are all the claims being examined in the application. Applicant herein amends claims 1, 5, 66, and 69 to require that the decompressed state of the internal space of the capping unit is maintained while the suction pump is driven. No new matter has been added.

The Examiner rejected claims 1, 4-5 and 66-74 under 35 USC section 102(b) as being anticipated by Terasawa. Applicant respectfully traverses this rejection, first with respect to independent claim 1, in view of its requirement for:

(the air valve always closes the air hole
while the suction pump decompresses the
internal space of the capping unit ...)

Applicant respectfully submits that Terasawa does not meet this requirement. As clearly seen in figures 6C and 6D of Terasawa, the decompressed state is released before the suction pump stops.

Because Terasawa does not meet the above identified requirement of independent claim 1, Terasawa does not anticipate the claim within the meaning of 35 USC section 102. Furthermore, Applicant respectfully finds in Terasawa no teaching or suggestion that would have enabled at artisan of ordinary skill to have produced a device that includes such a requirement. Applicant therefore respectfully submits that Terasawa does not render claim 1 unpatentable under 35 USC section 103, either. Therefore, Applicant respectfully requests the Examiner to withdraw this rejection of independent claim 1 and its dependent claim 4.

The foregoing comments are respectfully submitted to apply with equal force to this rejection of independent claim 5, in view of its substantially similar requirement that "the controller controls the capping unit such that the decompressed state of the internal space of the capping unit is maintained while the suction pump is driven".

The foregoing comments also apply to this rejection of independent claims 66 and 69.

In summary, Applicant respectfully requests the Examiner to withdraw the rejection of claims 1, 4, 5, and 66-74 in view of the amendments to the independent claims.

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The Examiner rejected claims 33-37 and 41 under 35 USC § 103(a) as being unpatentable over Terasawa in view of Wu. As pointed out already, above, Terasawa does not meet the newly added limitations of independent claims 1, 5, 66, or 69. Wu does not compensate for these deficiencies of Terasawa, and, even taken together as a whole, the combined teachings of Terasawa and Wu would not have enabled an artisan of ordinary skill to have achieved the subject matter of any of these independent claims. In particular, the combined teachings of these two references, taken as a whole, fail to teach or suggest that the decompressed state of the internal space of the capping unit is maintained while the suction pump is driven. }

Applicant therefore respectfully requests the Examiner to withdraw this rejection of claims 33-37 and 41, in view of their dependency from allowable independent claims.

Applicant respectfully thinks the Examiner for the indication of allowable subject matter in claims 38-40. In view of the comments presented above, however, Applicant respectfully submits that the independent claims 1 and 5 are themselves patentable over the prior art, and therefore Applicant respectfully requests the Examiner now to allow these dependent claims in their present form.

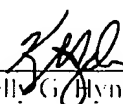
In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

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Applicant hereby petitions for any extension of time which may be required to maintain the pendency of this case, and any required fee, except for the Issue Fee, for such extension is to be charged to Deposit Account No. 19-4880.

Respectfully submitted,

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Date: March 19, 2002

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APPENDIX

VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS:

The claims are amended as follows:

1. (Amended) An ink jet recording apparatus comprising:
 - an ink jet recording head having nozzle orifices from which inkdrops are ejected;
 - an ink storage unit for storing ink to be supplied to the recording head;
 - an ink flow passage communicating the ink storage unit and the recording head;
 - a valve unit for opening/closing the ink flow passage;
 - a capping unit for sealing the nozzle orifices, provided with an air hole communicating with the atmosphere;
 - an air valve for opening/closing the air hole;
 - a suction pump for reducing pressure in an internal space of the capping unit to discharge inkdrops from the nozzles when the capping unit seals the nozzle orifices; and
 - a control unit for controlling the valve unit, the capping unit and the suction pump in such order that:
 - [a] the valve unit closes the ink flow passage;
 - b) the capping unit seals the nozzle orifice;]
 - [c)]the suction pump decompresses the internal space of the capping unit under a condition that the valve unit closes the ink flow passage and the capping unit seals the nozzle orifice; and
 - [d)]the valve unit opens the ink flow passage after a predetermined time period elapses wherein the air valve always closes the air hole while the suction pump decompresses the internal space of the capping unit.

V open → P decompress

5. (Amended) An ink jet recording apparatus comprising:
- an ink jet recording head having nozzle orifices from which inkdrops are ejected;
 - an ink storage unit for storing ink to be supplied to the recording head; an ink flow passage communicating the ink storage unit and the recording head;
 - a valve unit for opening/closing the ink flow passage;
 - a capping unit for sealing the nozzle orifices;
 - a suction pump for decompressing an internal space of the capping unit to discharge inkdrops from the nozzles when the capping unit seals the nozzle orifices; and
 - a control unit for controlling the valve unit, the capping unit and the suction pump in such order that:
 - [a] the valve unit closes the ink flow passage;
 - b) the capping unit seals the nozzle orifice;
 - c)] the suction pump decompresses the internal space of the capping unit under a condition that the valve unit closes the ink flow passage and the capping unit seals the nozzle orifice;
 - [d)]the valve unit opens the ink flow passage after a first predetermined time period elapses; and
 - [e)]the suction pump continues decompressing the internal space of the capping unit for a second predetermined time period;
- wherein the controller controls the capping unit such that the decompressed state of the internal space of the capping unit is maintained while the suction pump is driven.
33. (Amended) The ink jet recording apparatus as set forth in any one of claims 1 [,] and 5 [, and 7], wherein the valve unit includes:
- a valve control chamber which constitutes a part of the ink flow passage;
 - a flexible diaphragm which constitute a bottom wall of the valve control chamber;
 - an actuation body for deforming a center portion of the diaphragm in a direction perpendicular thereto.

66. (Amended) A cleaning control method for an ink jet recording apparatus which comprises:

- an ink jet recording head having nozzle orifices from which inkdrops are ejected;
- an ink storage unit for storing ink to be supplied to the recording head; an ink flow passage communicating the ink storage unit and the recording head;
- a valve unit for opening/closing the ink flow passage;
- a capping unit for sealing the nozzle orifices, provided with an air hole communicating with atmosphere;
- an air valve for opening/closing the air hole;
- a suction pump for reducing pressure in an internal space of the capping unit to discharge inkdrops from the nozzles when the capping unit seals the nozzle orifices, the method comprising the steps of:
 - closing the air hole using the air valve;
 - sealing the nozzle orifices by the capping unit;
 - closing the ink flow passage by the valve unit;
 - driving the suction pump to decompress the internal space of the capping unit;
 - holding the decompressed state for a predetermined time period; and
 - opening the ink flow passage by the valve unit
- wherein the air valve always closes the air hole while the suction pump decompresses the internal space of the capping unit.

69. (Amended) A cleaning control method for an ink jet recording apparatus which comprises:

- an ink jet recording head having nozzle orifices from which inkdrops are ejected;
- an ink storage unit for storing ink to be supplied to the recording head;
- an ink flow passage communicating the ink storage unit and the recording head;
- a valve unit for opening/closing the ink flow passage;
- a capping unit for sealing the nozzle orifices;

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a suction pump for reducing pressure in an internal space of the capping unit to discharge inkdrops from the nozzles when the capping unit seals the nozzle orifices, the method comprising the steps of:

sealing the nozzle orifices by the capping unit;

closing the ink flow passage by the valve unit;

driving the suction pump to decompress the internal space of the capping unit;

holding the decompressed state for a first predetermined time period; and

opening the ink flow passage by the valve unit while driving the suction pump;

wherein the decompressed state of the internal space of the capping unit is maintained while the suction pump is driven.